

# Competence-oriented teaching at tertiary level: Case study-based learning for sustainable mountain development

The main purpose of higher education is usually framed as research excellence, with a focus on systems knowledge and competitive publishing. *This does not leave much room for preparing students to be reflective and active practitioners of knowledge-based change responding to societal needs.* The biggest challenge of **Education for Sustainable Mountain Development (ESMD)** at tertiary level is conveyed in the proposition **“for”**: it must contain space for learning arrangements that **foster change agency**. Case study-based learning in real-world environments enables this (e.g. summer school). A typical summer school in a nutshell:

**Educational level and objective of summer school**  
**Target group:** students working on their PhDs in different universities and countries in the global North and South  
**Educational objective:** enable students to link their discipline with sustainable development and experience inter- and transdisciplinary research in a real-world context

**Education on Sustainable Mountain Development**  
**Component 1:** Conceptual and methodological seminars (2 days)

Introduces **systems knowledge** from a **systemic** perspective to address **wicked problems**: for example, what rice breed can be grown under unpredictable climate conditions while conserving agrobiodiversity, providing sufficient income for farmers, and conserving the cultural heritage of rice terraces?



## Case study-based learning means....

- ✓ Field cases in **real-world mountain environments**
- ✓ Different learning outcomes for **different actors**
- ✓ **A safe space** for individual and collective **learning edges**
- ✓ **Inter- and transdisciplinary** group work for students
- ✓ For lecturers: **coaching**, not transmitting knowledge
- ✓ **Peer-assessment tasks** and **leadership exercises**

**Education for Sustainable Mountain Development**  
**Components 2-4:** interdisciplinary group work to build common ground, fieldwork preparation with support from local experts (1 day), transdisciplinary case studies where students encounter local actors with real-world challenges and transformation knowledge (2-3 days), group analysis of data, perspectives, methods; presentation of joint transdisciplinary project proposals and review by peers (3 days)

Enables students to develop and negotiate **target knowledge** with actors concerned (e.g. what options and conditions are there for solving the rice breed–agrobiodiversity–income–cultural heritage dilemma?). Finally, how can these options be implemented, what **transformation knowledge** exists, and does it match the negotiated or suggested needs?

- Challenges and opportunities in the summer school**
- Willingness of students to question their own epistemological and ontological premises
  - Willingness of students and lecturers to deal with the normativeness of sustainable development and include values in scientific work
  - Multicultural and multi-institutional context of the academic work
  - Interactions with different societal actors
  - Organisational challenges and high costs
  - Need for appropriate, rich case studies
  - Need for continuous presence of lecturer-coaches

## Further Reading

Herweg K, Schäfer N, Zimmermann AB. 2012. *Guidelines for Integrative Training in Inter- and Transdisciplinary Research Settings: Hints and Tools for Trainers of Trainees*. Bern, Geographica Bernensia.  
Wilhelm S, Förster R, Zimmermann AB. 2019. Implementing competence orientation: Towards constructively aligned education for sustainable development in university-level teaching-and-learning. *Sustainability* 2019, 11, 1891; doi:10.3390/su11071891.